iii) the matrix has a permeability of at least 100 millidarcies relative to water;

c) disposal of the CX particles and porous matrix in a relative manner to form a microbicidal filter wherein:

i) the chlorhexidine particles are permanently affixed to the porous matrix;

ii) the affixed chlorhexidine particles comprise from 0.5% to 95% of the combined weight of the porous matrix and the chlorhexidine particles affixed thereto;

iii) when the fluid is aqueous, release of dissolved chlorhexidine from the microbicidal filter into a flow of aqueous fluid is essentially fully counterbalanced by trapping of dissolved chlorhexidine at the exposed polymer surfaces in the porous matrix, such that at a rate of aqueous fluid flow of 0.3 to 1.3 liter/(minute*square inch) through the microbicidal filter:

A) effluent from the filtered fluid flow is free of any detectable taste and odor of chlorhexidine;

B) dissolved chlorhexidine, if present in the effluent, is present at less than 3.00 milligrams per liter of effluent;

C) each of 2-, 3-, or 4-chloroaniline, if present in the effluent, is present at less than 0.100 milligrams per liter of effluent; and

D) such full counterbalancing is sustainable for a throughput volume of at least 800 gallons of water at room temperature per cubic inch of foam in a microbicidal filter; and

d) microbicidal capacity such that, within the sustainable throughput volume at the rate of aqueous flow shown in (c)(iv)(D), the filter kills or otherwise inactivates pathogens from an influent, such that at a minimum the reduction of live cells between influent and effluent occurs to a degree selected from the group consisting of the following:

i) a 6.6-log reduction in coliform bacteria *Escherichia coli* or *Klebsiella terrigena* for samples having 1×10^7 live cells/100 mL influent;

ii) a 4-log reduction in a *Coronavirus* strain or process resistant viruses poliovirus 1 (LSc) or rotavirus (Wa or SA-11) for samples having 1×10^7 viral particles/L influent;

iii) a 3-log reduction in cysts of Giardia muris or Giardia lamblia, for samples having a concentration in the range of 1×10^6 to 1×10^7 organisms/L influent; and

iv) a 3.8 log reduction in a Legionella bacterial strain for samples having 6×10^3 live cells/L influent.

2) The system of claim **1** wherein the water-insoluble polymer(s) is or are selected from the group consisting of: polyurethanes; polyolefins; polyesters; polycarbonates; synthetic and natural polyamides; polyimides; polyacrylates; polymethacrylates; vinyl polymers; rubbers; polyacrylonitrile; polysiloxanes; polysaccharides; and combinations and blends thereof

3) The system of claim **1** wherein the water-insoluble polymer(s) has or have a melting transition temperature greater than 57° C.

4) The system of claim **1** wherein the fluid is selected from the group consisting of: water; ethanol; isopropanol; bodily fluids; medications; air; oxygen gas; nitrogen gas; carbon dioxide; argon gas; nitrous oxide; an anesthetic gas other than nitrous oxide; and mixtures thereof

5) The method of claim **10** wherein the influent is an aqueous medium selected from the group consisting of: potable water; a beverage; a stream for transfusion of bodily fluids; an aqueous solution for use in a medical procedure; a recycle stream in a chemical process; a recycle stream in a cell culturing process; and mixtures thereof

6) The system of claim **1** wherein the fluid is air that has an average relative humidity selected from the group consisting of at least: 20%; 25%: 30%: 35%: 40%: 45%: 50%: 55%: 60%: 65%: 70%: 75%: 80%; 85%; 90%; 95%; and 100%.

7) The system of claim **1**, wherein the porous matrix has a form selected from the group consisting of: an open foam; a reticulated foam; a fiber mat; a knitted fabric; a woven fabric; a nonwoven fabric; a material formed by sintering; a material formed by particles attached to one another by a binder; and a monolithic solid in which are defined channels running through it.

8) The system of claim **1**, wherein the CX solids are affixed to the porous matrix by a means selected from the group consisting of: formation of covalent, ionic, or hydrogen bonds between CX surface molecules and the matrix; the presence of an adhesive between the solid and a matrix surface; adhesion to a matrix surface by a melt step; partial embedding within the matrix; full embedding within the matrix; and physical retention by fibers within the matrix.

9) The system of claim **1**, wherein the system further comprises a material selected from the group consisting of: an adhesive that affixes CX solids to the matrix; a binder that holds CX solid particles in close proximity to one another; a water-insoluble superabsorbent polymer that retains water in close proximity to the CX solids; and an insoluble hygroscopic salt that absorbs water from fluid media and retains the water in close proximity to the CX solids.

10) The system of claim **1**, wherein:

a) the system further comprises grains having a composition selected from the group consisting of: a phosphate of calcium; a carbonate of calcium; carbon; and sand; and

b) the grains are disposed before, within pores of, embedded in the porous matrix, or after the porous matrix, relative to a flow of fluid during filtration.

11) The system of claim **1**, wherein the porous matrix is comprised of:

a) an upstream zone within which the chlorhexidine particles are permanently affixed; and

b) a downstream zone that is essentially free of chlorhexidine particles.

12) The system of claim **1**, configured for a method of use that comprises, in order:

a) supplying an influent fluid for which antimicrobial treatment or assurance of safety is desired;

b) physically directing the fluid such that it passes through the porous matrix and emerges as effluent; and

c) directing effluent from the system for storage, immediate use, or further processing.

13) The system of claim **1**, configured for a device that comprises, in order:

a) a supply module that provides an influent fluid;

b) a treatment module that receives influent from the supply module, and passes it through the porous matrix to emerge as effluent; and